DRAFT

ENVIRONMENTAL ASSESSMENT

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ELK CHUTE LEVEE SETBACK,
DUNKLIN COUNTY, MISSOURI
April 4, 2008

INTRODUCTION

The U.S. Army Corps of Engineers, Memphis District, has prepared this environmental assessment (EA) to evaluate potential impacts associated with a levee setback, streambank stabilization, and consolidation of drainage control structures to an existing levee on the north side of Belle Fountain West Ditch, Missouri, near State Highway TT. The project site is just north of the Missouri-Arkansas state line, approximately 9 miles northwest of Blytheville, Arkansas (Figure 1). Bank stability has placed the integrity of the existing levee in jeopardy. If left unchecked, bank failures could severely undermine the levee, causing the levee to fail. No overall channel enlargement would be done. However, the banks would be graded and sloped to accommodate the rock riprap armor. Excavated material and existing levee material would be deposited in 96 acres of prior converted farmland and 8.5 acres of a permitted wetland mitigation site to create the new levee. The Memphis District Regulatory Branch is currently coordinating with the landowner to submit a permit modification to offset construction impacts to the mitigation site. At a minimum, the Regulatory Branch will require a 2:1 ratio (17 acres) to offset the impacts.

This EA is prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, and implementation guidance provided by Council on Environmental Quality regulations 40 CFR 1500-1508 and by U.S. Army Corps of Engineers Regulation ER-200-2-2, and employs a systematic, interdisciplinary approach. The following sections include a discussion of the need, authority, and impacts of alternative plans on natural and cultural resources associated with the proposed action.

PROJECT DESCRIPTION

The project consists of setting approximately 5.1 miles of the existing levee back approximately 50 feet; stabilizing the Belle Fountain West Ditch bank by creating a stable (3.75H:1V) slope; constructing a 50-foot berm between the ditch and the levee; consolidating the existing twenty-five drainage outlets of various sizes and elevations into five concrete drainage structures, and constructing a landside toe ditch. Several access ramps and culverts would also be constructed to maintain current access to and drainage of adjacent fields. Some trees, brush, and debris would need to be cleared for this work to be performed, and would be disposed of on site. A total of five items of work are proposed for the entire project, with an estimated one mile of work to be completed annually. Fill material would be obtained from the degraded levee section and the borrow area adjacent to the existing landside levee toe of slope. Typical cross sections are provided in the appendix.

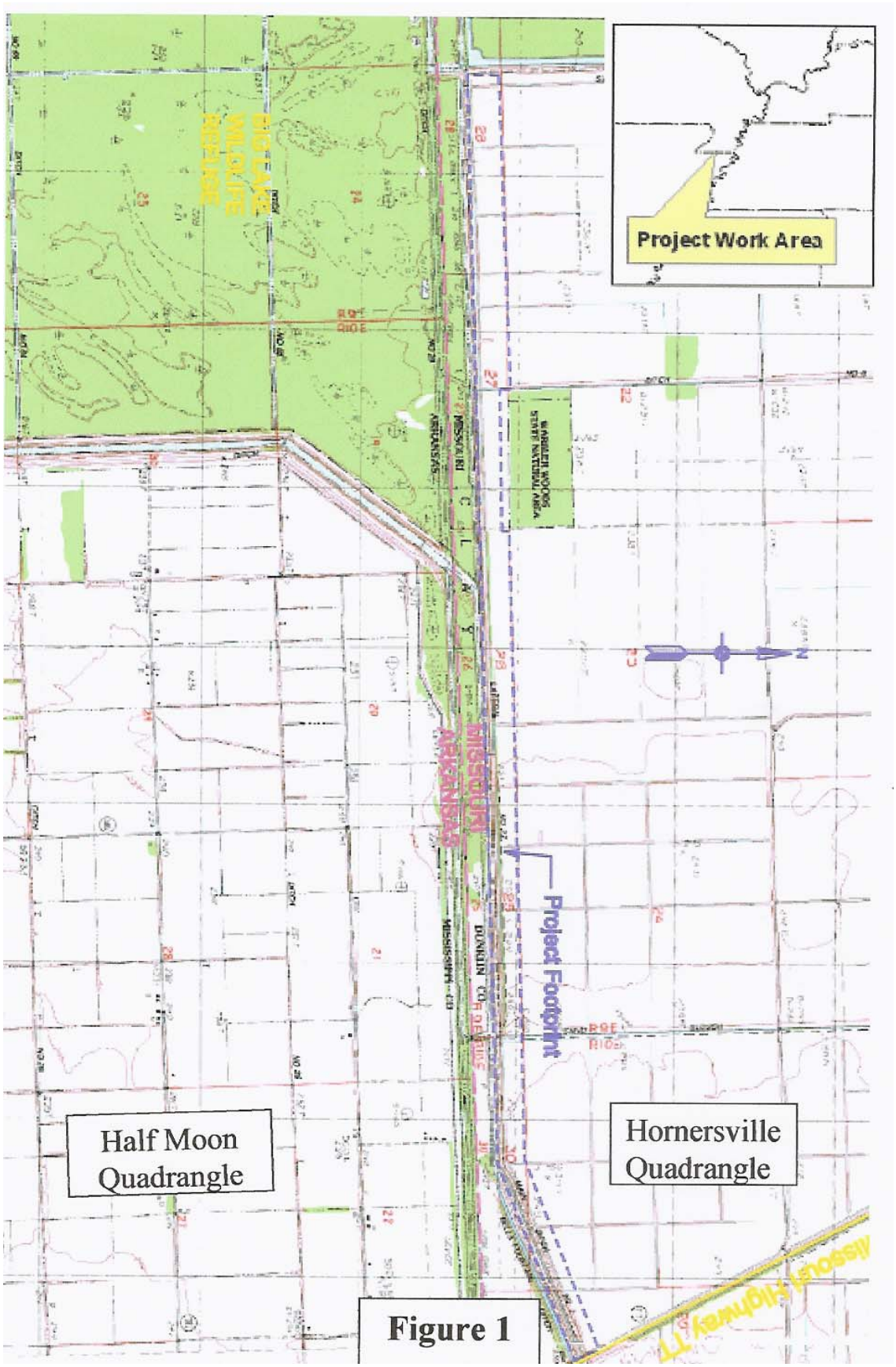
Project Work Area
BIG LAKE WILDLIFE REFUGE
MISSOURI
ARKANSAS
Project Footprint
Half Moon Quadrangle
Hornersville Quadrangle

Figure 1

NEED FOR ACTION

The purpose of this project is to arrest the degradation of the existing Elk Chute Levee and correct bank stability problems within Belle Fountain West Ditch. The levee continues to slide and slough on the riverside, creating the need for extensive repairs to the levee, the drainage structures, and the channel of Belle Fountain West Ditch. There are numerous culverts through the existing levee that are in constant need of repair, causing potential weak spots in the levee. By consolidating the many culverts into fewer box culverts and setting back the levee, the potential for levee failure is lessened. Also, the amount and frequency of channel scour repair would be reduced. The structural integrity of the levee continues to be at risk, potentially impacting the approximate 32-square mile watershed.

AUTHORITY

This project was authorized by the Flood Control Act of 15 June 1936. Local cooperation requirements were modified by the Flood Control Act of 24 July 1946 which limited local responsibility to ordinary maintenance as defined by Section 3 of the Flood Control Act of 15 May 1928.

ALTERNATIVES CONSIDERED

Three alternatives including the no action alternative were considered for this project.

Alternative 1: No action: The no action alternative is defined as non-implementation of the project. Bank scouring would continue and the levee would continue to slide and slough on the riverside, creating the need for extensive repairs to the levee, the drainage structures, and the channel. The structural integrity of the levee would continue to be at risk.

Alternative 2: Restore and maintain original levee design: This alternative would involve armoring the riverside of the levee and repairing the twenty-five existing drainage outlets. Currently, the riverside toe of the levee and the top bank of the ditch are indistinguishable. Twenty-three of the existing drainage outlets are corrugated metal pipes equipped with flap gates. The remaining two structures are concrete structures built around 1948. Extensive in-stream work would be undertaken to stabilize the existing stream banks to prevent future sloughing and sliding of the levee due to in-stream processes. The different drainage structures would remain, requiring the in-stream armoring via rip-rap aprons at each outlet. The structural integrity of the existing levee would be restored back to the original project design. However, the potential for levee slides and sloughing on the riverside requiring the extensive repairs to the levee, the drainage structures, and the channel would remain.

Alternative 3: Set the existing levee back: This alternative would relocate 5.1 miles of levee approximately 50 feet north of its existing location, stabilize the right descending bank of Belle Fountain West Ditch, and consolidate the twenty-five existing drainage structures of various types into five concrete drainage structures. The Belle Fountain West Ditch would be stabilized, and the levee moved further away from its existing position, reducing the potential of levee failure and extensive levee repairs. By replacing and combining the numerous existing drainage

structures, extensive rehabilitation or expensive maintenance would be further reduced. This option would also slightly increase the floodplain of Belle Fountain West Ditch. Warm season grasses would be planted within the 50-foot area between the levee toe and top bank of the ditch. In addition, wetland grasses would be planted along the water line.

After careful consideration of all alternatives, it was determined that Alternative 1 (no action) was unacceptable. Alternative 2 was not feasible due to the high cost and greater in-stream impacts. Consequently, Alternative 3, relocation of the levee, bank stabilization, and consolidation of drainage structures is the recommended plan.

FLOODPLAIN MANAGEMENT

Belle Fountain West Ditch lies in the old Mississippi River floodplain. The Elk Chute Levee System encloses a 31.8 square mile watershed. The Elk Chute South Levee provides protection against waters from Belle Fountain West (a St. Francis Basin Project channel) and Main Ditch 1 (a local drainage ditch), both of which drain into Stateline Outlet (a St. Francis Basin Project channel). Since this work would essentially move the existing levee north approximately 50 feet and consolidate existing problematic drainage structures, there is no practical alternative to constructing this project within the floodplain.

HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE (HTRW)

A site inspection was conducted on 17 August 2006, and no evidence of HTRW problems was observed. A record search was conducted by Corps personnel through the EPA EnviroMapper Web Page (http://www.epa.gov/enviro/html/em/index.html). This EPA search engine did not indicate any superfund sites, toxic releases, or hazardous waste sites within, or directly adjacent to the project site. Absence of a historical file on a particular property is not meant to constitute a guarantee that activities have not occurred or the site has never been impacted.

Based upon the check of the EPA Web Page and the site inspection, it is reasonable to assume that no HTRW would be encountered within the project area. No additional HTRW investigations are recommended. No other analysis is required unless new information is revealed or HTRW is discovered during construction.

In October 2007, a biodiesel byproduct consisting of glycerin, methanol, and sodium hydroxide as the catalyst was reported as being dumped approximately 2 miles upstream of the Highway TT crossing. Fish and mussel mortality were reported upstream of the Highway crossing. However, no dead specimens of endangered mussels were discovered within the project reach during field surveys. The appropriate state, Federal, and law enforcement agencies responded and initiated the on-going investigation. The likely biodiesel pollutant was deemed non-hazardous to human health.

ENVIRONMENTAL SETTING

Location

The location of this item of work is in Dunklin County, Missouri, just north of the Missouri-Arkansas state line, approximately 9 miles northwest of Blytheville, Arkansas. The Elk Chute South Levee is approximately 5.1 miles long and extends from Missouri State Highway TT westward to its intersection with the Elk Chute West Levee.

Climate

Dunklin County has long hot summers and rather cool winters. The average winter temperature is 40 degrees Fahrenheit, and the average daily winter minimum temperature is 30 degrees Fahrenheit. In summer, the average temperature is 79 degrees Fahrenheit, with the average daily maximum temperature of 91 degrees Fahrenheit. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation falls mainly in afternoon thunderstorms and is adequate for all crops when distribution is favorable. The total annual precipitation is about 50 inches. Of this, approximately 53 percent falls from April through September, which includes the growing season for most crops. Average annual snowfall is 8 inches. The average relative humidity in mid afternoon is about 55 percent, and occasionally reaches 80 percent (U.S. Soil Conservation Service 1979).

Soils

The parent materials of most of Dunklin County result from geological deposits made by the Mississippi River and its tributaries. These deposits vary in age and composition, since they came from several places throughout the area drained by the Mississippi and Ohio Rivers. The remainder is loess and Gulf Coastal Plain deposits of Crowleys Ridge. As a result, the area is relatively flat with only gradual changes in elevation due to several different ancient river terrace levels. The major soil association is the Sharkey association. These soils are deep, level and nearly level, poorly drained clayey soils in slack water positions. These soils are mainly used for cultivated crops, with a few areas being wooded. Ponding is common, mainly in the winter and spring. Most areas have been drained by a system of ditches, and some areas have been graded to enhance local drainage. The soil type most predominate (approximately 80%) is a Sharkey-Steele complex. This is a nearly level, poorly drained and moderately drained soil. Permeability is slow and surface runoff is slow or very slow. The soil is used for cultivated crops (as evidenced by the soybean fields around the project site), hay, pasture, and trees. A variety of soybeans, cotton, wheat, grain sorghum, and grasses and legume crops may be grown, especially when drained by a system of field ditches (U.S. Soil Conservation Service 1979).

SIGNIFICANT RESOURCES AND IMPACTS

Agricultural Lands

Approximately 96 acres of prior converted cropland would be in the rights-of-way that would be used for the entire levee setback. The main deposition area would be on the landside

of the existing levee area. Overall, the project would benefit agricultural lands by ensuring that the levee system would continue to prevent flood damages to cropland.

Vegetation

A narrow strip of small willow, boxelder, and red maple trees, with associated understory and groundcover, line the ditchbank from the top banks to the waterline. All species are typical and common to the area. This vegetation would be removed during construction. Most of the rights-of-way are in agricultural crop or fallow field. The majority of the excavated material for levee construction would be placed in prior converted cropland; however, approximately 8.5 acres of wetland vegetation will be lost from an existing permitted wetland mitigation site due to levee placement. The Memphis District Regulatory Branch is currently coordinating with the landowner to submit a permit modification to offset construction impacts to the mitigation site. At a minimum, the Regulatory Branch will require a 2:1 ratio (17 acres) to offset the impacts. The 31-acre area between top bank and the levee toe will be planted in native warm season grasses. The streamside embankments would be planted in wetland grasses. The above measures would offset any impacts to vegetation.

Wildlife Resources

Wildlife in the project area include deer, raccoons, beavers, rabbits, gray squirrels, mice, rats, shrews, songbirds, amphibians, reptiles, occasional waterfowl, and other wildlife common to the St. Francis River Basin. Project induced impacts to wildlife are expected to be minimal due to the limited construction area, nature of the proposed construction, and the types of wildlife habitat within the project area. Overall, there should be a gain in wildlife habitat over time. The floodplain would be widened approximately 50 feet for approximately 5.1 miles within the project area by setting the levee back. This area would be planted in warm season grasses, including wetland grasses below the top bank of the ditch. Warm season grasses would benefit many wildlife species such as quail, rabbit, and deer.

Aquatic Resources

Approximately 5.1 miles of the Belle Fountain West Ditch right-descending bank would be graded to a slope of 3.75H:1V, and then planted in wetland grasses. Limestone rock riprap and gravel would be placed at the five proposed drainage outlet structures into Belle Fountain West Ditch for stabilization. Indirect impacts of sedimentation will be minimized through the use of sediment control measures including silt fencing, straw bales, and the planting of warm season grasses. In addition, the project would lesson long-term impacts to aquatic resources by reducing the amount and frequency of channel scour maintenance.

Endangered Species

Memphis District biologists conducted a qualitative mussel survey within the project limits and adjacent areas on 17 August 2006. Live individuals representing twelve mussel species were collected during the survey, including one live *Potamilus capax* (Fat Pocketbook). *P. capax* is a Federally listed endangered mussel species. No other threatened or endangered

species were observed during the survey. A copy of the mussel survey report is provided in the appendix.

During consultation with the U.S. Fish and Wildlife Service, it was determined that a biological assessment (BA) would be written to discuss the potential impacts of the proposed construction on *P. capax.* The resulting BA concluded that based on surveys conducted in 1997 and again in 2006, *P. capax* was present in the project area in extremely low numbers. Some aspects of the proposed construction project (i.e. riprap placement in the ditch and sedimentation resulting from construction), were likely to adversely affect individual *P. capax* inhabiting both Belle Fountain West Ditch and the south connector ditch. However, the proposed project would cause no adverse effects to the significant *P. capax* population inhabiting Stateline Outlet Ditch, which is farther downstream of the project area.

The BA proposed minimizing the indirect impacts of sedimentation through the use of sediment control measures including silt fencing, straw bales, and the planting of warm season grasses including switchgrass, indiangrass, and eastern gamagrass. The BA proposed that these grasses be planted within the 50-foot area between the levee toe and top bank of the ditch along the entire project length. These species were proposed because they provide erosion control and brooding, rearing, and cover for various species of wildlife. Prairie cord grass and native river cane would also be planted along the shoreline of the ditch.

In a letter dated 10 January 2008, the USFWS stated implementation of prudent and reasonable measures to minimize construction impacts, which included the sediment reduction measures proposed in the BA and additional reporting and monitoring requirements that would exempt the project from the prohibitions in Section 9 of the Endangered Species Act.

A take of up to five *P. capax* was permitted to account for any individuals that might be buried by riprap or by increase sedimentation.

Personal communication with the U.S. Fish and Wildlife Service revealed that no other Federally listed, or proposed, endangered or threatened plant or animal species, or critical habitats, are known to occur within the proposed work area. Requirements of Section 7 of the Endangered Species Act have been fulfilled.

Cultural Resources

The project area was surveyed for cultural resources in 2006, and a “negative finding” report was generated for this area of Elk Chute Levee/Belle Fountain West Ditch. The Memphis District Archaeologist coordinated this project with the Missouri State Historic Preservation Officer (SHPO). This report was sent to the SHPO and to the appropriate Federally recognized tribes. The SHPO concurred with the recommendation that there would be no historic properties affected, and therefore, has no objection to the initiation of project activities. The Federally recognized tribes had no negative comments. Tribal and SHPO letters are provided in the appendix. The Memphis District Archaeologist concluded that no further cultural resources work would be required at this time. However, should deeply buried artifacts or other site indicators be uncovered during construction, the Memphis District Staff Archeologist and the

Missouri State Historic Preservation Office should be immediately notified to ensure compliance with all Federal and state laws and regulations.

Wetlands

Approximately 8.5 acres of a six-year old mitigation site (Permit Number Little River Ditches 2001-041 and Permit Number Castor River 97-3) would be directly impacted when the levee is setback to its new location. These wetlands would be covered by the toe of the setback levee. The Memphis District Regulatory Branch is currently coordinating with the landowner to submit a permit modification to offset construction impacts to the mitigation site. At a minimum, the Regulatory Branch will require a 2:1 ratio (17 acres) to offset the impacts. The remaining 18.30 acres of the mitigation sites is adjacent to Warbler Woods State Natural Area that consists of 84.29 acres. The proposed project will not change the hydrology or jurisdictional status of the mitigation sites or Warbler Woods. No indirect impacts are anticipated to occur.

Air Quality

No air quality monitoring data has been collected for this area by the Missouri Department of Natural Resources. However, the project site is in an attainment area, and there are no air pollution concerns. Although the State of Missouri does not require permits for air emissions from mobile sources within attainment areas, best management practices shall be used throughout the construction to minimize air pollution. No adverse impacts are expected.

Water Quality

A 404(b)(1) evaluation has been completed and it is attached in the appendix. Turbidity and total suspended solids would be temporarily increased due to construction activities. There would be no net loss of stream bank, channel, or drainage. The water table would not be lowered, and no adjacent wetlands would be drained or impacted other than the existing mitigation site. Impacts to water quality should be short-lived and return to preconstruction levels following construction.

CUMULATIVE EFFECTS

There are minimal wetlands within or adjacent to the project construction site. The land within the project site was cleared long ago of forest and is now in agriculture and existing levee structure. Any trees and shrubby vegetation are relegated to the stream banks and would be removed during construction. The 31-acre area between top bank and the levee toe will be planted in native warm season grasses. The grass buffer would reduce sedimentation, improve water quality, and provide wildlife benefits. The project would decrease long-term aquatic and terrestrial impacts by reducing the frequency and amount of channel scour repair. In addition, the levee setback would increase the floodplain of Belle Fountain West Ditch.

MITIGATION

Approximately 8.5 acres of a six-year old mitigation site (Permit Number Little River Ditches 2001-041 and Permit Number Castor River 97-3) would be directly impacted when the

levee is setback to its new location. The Memphis District Regulatory Branch is currently coordinating with the landowner to submit a permit modification to offset construction impacts to the mitigation site. At a minimum, the Regulatory Branch will require a 2:1 ratio (17 acres) to offset the impacts.

Native warm season grasses will be planted on 31 acres between the levee and Belle Fountain West Ditch. Switchgrass (*Panicum virgatum*), Indiangrass (*Sorghastrum nutans*), and eastern gamagrass (*Tripsacum dactyloides*) will be planted immediately following construction if the construction ends during the appropriate planting period. If construction is completed at a time when the native warm season grasses cannot be planted (June through November), then a temporary cover crop of winter wheat will be planted to stabilize the bank and reduce sedimentation until the warm season grasses can be planted. Prairie cord grass and native river cane would also be planted along the shoreline of the ditch.

COMPLIANCE WITH REGULATIONS

Project compliance with applicable Federal and state regulations is shown in Table 1. Review of the draft EA by appropriate agencies and individuals and a finding of no significant impact (FONSI) would bring the project into compliance with NEPA.

COORDINATION

U.S. Department of the Interior, U.S. Fish and Wildlife Service, Columbia, MO
U.S. Department of Agriculture, Natural Resources Conservation Service, Dunklin Co., MO
U.S. Environmental Protection Agency, Kansas City, KS
Missouri Department of Conservation, Jefferson City, MO
Missouri Department of Natural Resources, Jefferson City, MO
Missouri State Historic Preservation Officer, Jefferson City, MO
Choctaw Nation of Oklahoma, Durant, OK
Osage Nation, Pawhuska, OK
Sac and Fox Nation of Missouri in Kansas and Nebraska, Reserve, KS

RELATED ENVIRONMENTAL DOCUMENTATION/REFERENCES

U.S. Soil Conservation Service in Cooperation with Missouri Agricultural Experiment Station. 1979. "Soil Survey of Dunklin County, Missouri."

U.S. Army Corps of Engineers, Environmental Desk Reference (IWR) Report 96-PS-3), Institute for Water Resources Policy and Special Studies Division, July 1996.

USDA, Food Security Act.

CONCLUSION

This office has assessed the environmental impacts of the proposed action and has determined that the proposed work would have no significant impacts upon vegetation, fish, wildlife, cultural resources, or the human environment.

PREPARER

For additional information contact Kevin Pigott at (901) 544- 4309.

Table 1. Relationship of Plan to Environmental Laws and Regulations

RELATIONSHIP OF PLAN TO ENVIRONMENTAL LAWS AND REGULATIONS

The relationships of the recommended plan to the requirements of environmental laws, executive orders, and other policies are presented below:

Federal Policies and Acts	Compliance Status
Archaeological Resources Protection Act of 1979	1
Bald Eagle Act	1
Clean Air Act Amendments of 1977	1
Clean Water Act of 1977, as amended	2*
Endangered Species Act of 1973, as amended	1
Farmland Protection Policy Act of 1984	1
Fish and Wildlife Coordination Act of 1958	1
Flood Control Act of 1946, as amended	1
Food Security Act of 1985	1
Land and Water Conservation Fund Act	1
National Environmental Policy Act of 1969	2**
National Historic Preservation Act of 1966, as amended	3
River and Harbor and Flood Control Act of 1970	1
Water Resources Development Act of 1986	1
Water Resources Planning Act of 1965	1
Executive Orders	
Floodplain Management (E.O. 11988)	1
Protection, Enhancement of the Cultural Environment (E.O. 11593)	1
Protection of Wetlands (E.O. 11990)	1
Other Federal Policies	
Prime and Unique Farmlands (CEQ Memo, 1976)	1
Water Resources Council, Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies	1

1/ Full compliance with the policy and related regulations has been accomplished.
2/ Partial compliance with the policy and related regulations has been accomplished.
3/ Consultation is ongoing; should remains be encountered full compliance with policy and related regulations shall be accomplished.

*Full compliance would be achieved upon issuance of water quality certification.
**Full compliance would be met following the Finding of No Significant Impact.

Appendix

1. Typical cross sections of proposed new Elk Chute Levee.

2. Osage Tribe of Oklahoma letter dated August 14, 2006.

3. Sac and Fox Nation of Missouri in Kansas and Nebraska letter dated September 14, 2006.

4. Choctaw Nation of Oklahoma letter dated October 4, 2006.

5. Missouri Department of Natural Resources, State Historic Preservation Office letter dated January 25, 2007.

6. Mussel Survey for Elk Chute Levee Setback, Dunklin County, Missouri.

7. Biological Assessment of the Fat Pocketbook Mussel (*Potamilus capax*) for the Elk Chute South Levee Setback, St. Francis River Basin, Dunklin County, Missouri.

8. Biological Opinion for the Proposed Elk Chute South Levee Setback, Dunklin County, Missouri from the U.S. Fish and Wildlife Service, Columbia Ecological Services Field Office.

9. Draft – Section 404(b)(1) Document.

10. Draft – Finding of No Significant Impact.